

**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

**ENERGY DIVISION**

**RESOLUTION E-4832**

**April 6, 2017**

**R E S O L U T I O N**

Resolution E-4832. Pacific Gas and Electric (PG&E), Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E), Approval with Modification of Revisions to Electric Tariff Rule 21 to Incorporate Smart Inverter Working Group (SIWG) Phase 2 Communications Recommendations in Compliance with Decision (D.) 16-06-052.

**PROPOSED OUTCOME:**

- This Resolution approves PG&E's and SCE's proposed revisions to Electric Tariff Rule 21 incorporating the Smart Inverter Working Group Phase 2 communication recommendations as requirements for generating facilities utilizing inverter-based technologies.
- This Resolution approves SDG&E's proposed revisions to Electric Tariff Rule 21 incorporating the Smart Inverter Working Group Phase 2 communication recommendations as requirements for generating facilities utilizing inverter-based technologies with modification to the effective date of the communication requirements.
- This Resolution approves Advice Letters (ALs) 3532-E and 4982-E.
- This Resolution approves AL 3023-E with modification.

**SAFETY CONSIDERATIONS:**

- Implementation of Phase 2 communication protocols between the utility and generating facilities utilizing smart inverters could improve the safety and reliability of the distribution system.

**ESTIMATED COST:**

- There is no impact on cost.

By SDG&E AL 3023-E, SCE AL 3532-E, and PG&E AL 4982-E, Filed  
on December 20, 2016.

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## **SUMMARY**

Pacific Gas and Electric, Southern California Edison and San Diego Gas & Electric request approval of modifications to Electric Tariff Rule 21 that incorporate the Smart Inverter Working Group Phase 2 communications recommendations. The recommendations define the communications capability of smart inverters, specified pathways of communication between the utility and the generating facility, and the default communication protocol standard. Pacific Gas and Electric's and Southern California Edison's proposed revisions are found to be compliant with Decision 16-06-052, and are approved. San Diego Gas & Electric's proposed revisions are found to be compliant with Decision 16-06-052 with modification to the effective date of communication requirements, and are approved with modification.

## **BACKGROUND**

The Commission initiated Rulemaking (R.) 11-09-011 on September 22, 2011 to review and, if necessary, revise the rules and regulations governing the interconnection of generation and storage facilities to the electric distribution systems of the investor-owned utilities (IOUs). The IOUs' rules and regulations pertaining to the interconnection of generating facilities are set forth in Electric Tariff Rule 21 (Rule 21). Generating resources interconnecting to the utility grid via Rule 21 which produce direct current (DC) power require an inverter to convert the DC from the generating resource to the voltage and frequency of the alternating current (AC) distribution system. In early 2013, the Smart Inverter Working Group was formed by parties of R.11-09-011 to develop proposals to take advantage of the new, rapidly advancing technical capabilities of inverters. In February 2015, the SIWG completed its recommendations for Phase 2 communications including specifying the default communication protocol standard as IEEE 2030.5. IEEE 2030.5 defines a framework for communications between the utility and the generating resource. On June 23, 2016, the Commission adopted D.16-06-052, which directed the IOUs to file proposed revisions to Rule 21 setting forth any agreed-upon technical requirements, testing, and certification processes, and effective dates for Phase 2 functions in Tier 3 advice letters no later than six months from the effective date of

D.16-06-052. On November 17, 2016, the Commission's Energy Division hosted a public workshop with the purpose of providing guidance to the IOUs on the advice letter compliance filings. During the workshop, it was determined that there was sufficient consensus for the IOUs to propose revisions to Rule 21 to adopt the Phase 2 recommendations for communication protocols. One of the key points of discussion included determining a reasonable date for when the Phase 2 requirements would become mandatory. Parties discussed structuring the requirements such that the mandatory date become the later of (a) a specific date in 2018 or (b) 9 to 12 months following the release of the SunSpec Alliance certification protocol or another industry-recognized certification protocol. On December 20, 2016, the IOUs filed advice letters to comply with D.16-06-052 setting forth agreed-upon technical requirements, testing, and certification processes, and effective dates for Phase 2 functions.

## **NOTICE**

Notice of ALs 3023-E, 3532-E, and 4982-E was made by publication in the Commission's Daily Calendar. In accordance with Section 4 of GO 96-B, PG&E, SCE, and SDG&E served copies of these ALs to the R.11-09-011 and GO 96-B service lists.

## **PROTESTS**

Advice Letters 3023-E, 3532-E, and 4982-E were not protested.

## **DISCUSSION**

The Commission approves the advice letters modifying Rule 21 to incorporate SIWG Phase 2 communications recommendations. The modifications add a subsection to Rule 21 that specifies the effective date generating facilities that utilize inverter-based technologies are required to have communication capabilities. The tariff modifications include: 1) communication pathways for the IOU and the generating facility, 2) specific communication protocol requirements, and 3) references to additional documents, such as the IOU's generation interconnection handbook and an application-level protocol implementation guide.

Energy Division has reviewed the tariff revisions from each IOU's advice letter and found they are compliant with D.16-06-052. The tariff revisions reflect

agreed-upon technical requirements, testing, and certification processes, and effective dates for Phase 2 functionality as provided by the Smart Inverter Working Group's written recommendations from 2015 and the discussions from the public workshop held by the Energy Division on November 17, 2016.

In Pacific Gas and Electric's and Southern California Edison's proposed tariff revisions, the mandatory date for Phase 2 functionality is the later of (a) March 1, 2018 or (b) nine months after the release of the SunSpec Alliance communication protocol certification test standard or the release of another industry-recognized communication protocol certification test standard.

In San Diego Gas & Electric's proposed revisions, the mandatory date for Phase 2 functionality is the later of (a) April 1, 2018 or (b) nine months after the release of the SunSpec Alliance communication protocol certification test standard or the release of another industry-recognized communication protocol certification test standard.

For consistency among the three IOUs, we make one modification to San Diego Gas & Electric's proposed tariff revisions. San Diego Gas & Electric's mandatory date for Phase 2 functionality will be the later of March 1, 2018 or 9 months after the release of the SunSpec Alliance communication protocol certification test standard or the release of another industry-recognized communication protocol certification test standard.

## **COMMENTS**

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the Commission. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, the draft resolution was mailed to parties for comments on February 27, 2017, and placed on the Commission's agenda for April 6, 2017. No comments were filed.

**FINDINGS**

1. D.16-06-052 directed the IOUs to file Advice Letters to incorporate the Smart Inverter Working Group Phase 2 communications recommendations into Electric Tariff Rule 21 by December 20, 2016.
2. The Energy Division hosted a public workshop to assist the IOUs and the SIWG reach consensus on the Phase 2 communication requirements on November 17, 2016 and the SIWG consequently achieved significant consensus.
3. On December 20, 2016, the IOUs separately filed Tier 3 Advice Letters with modifications to Rule 21 incorporating the SIWG Phase 2 communication recommendations.
4. Pacific Gas and Electric's, Southern California Edison's and San Diego Gas & Electric's filed revisions reflecting agreed-upon technical requirements, testing, and certification processes, and effective dates.
5. San Diego Gas & Electric's filed revisions on the effective dates for the Phase 2 communication requirements did not match Pacific Gas and Electric's and Southern California Edison's filed revisions, and had to be modified.
6. No protests or comments were filed within the 20-day protest period for the Advice Letters.

**THEREFORE IT IS ORDERED THAT:**

1. Pacific Gas and Electric, Southern California Edison, and San Diego Gas & Electric are permitted to add a subsection of communications requirements in Electric Tariff Rule 21 to incorporate the Smart Inverter Working Group Phase 2 recommendations.
2. For the three IOUs, the new subsection will become mandatory for generating facilities utilizing inverter-based technologies for which an interconnection request is submitted on or after the effective date which is defined as: the later of (a) March 1, 2018 or (b) nine months after the release of the SunSpec Alliance communication protocol certification test standard or the release of another industry-recognized communication protocol certification test standard.
3. Southern California Edison Advice Letter 3532-E and Pacific Gas and Electric Advice Letter 4982-E are approved.

4. San Diego Gas & Electric Advice Letter 3023-E is approved with modification to conform the mandatory date of Phase 2 functionality with Pacific Gas and Electric and Southern California Edison.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on April 6, 2017; the following Commissioners voting favorably thereon:

/s/TIMOTHY J. SULLIVAN  
TIMOTHY J. SULLIVAN  
Executive Director

MICHAEL PICKER  
President

CARLA J. PETERMAN  
LIANE M. RANDOLPH  
MARTHA GUZMAN ACEVES  
CLIFFORD RECHTSCHAFFEN  
Commissioners